adjacent first lines and second lines to generate a color difference signal from every unit, wherein the color difference signals generated from adjacent units are different, and the color difference signals generated from every other unit are equal." Applicants believe that this new wording remedies the rejection under Section 112, second paragraph, and its withdrawal is therefore respectfully requested.

The Office Action relies on the article "HDTV Single-chip CCD Color Camera" by Tanaka et al. as anticipating Claim 3 and some of the other claims, and as rendering the remaining rejected claims obvious in combination with U.S. Patent No. 5,907,355 (Kotaki). Applicants respectfully traverse these rejections.

Applicants submit that amended independent Claim 3, together with the remaining dependent claims, are patentably distinct from Tanaka et al. at least for the following reasons.

Claim 3 requires an image pickup device including the following six elements: (1) a color filter array including color filters arranged in horizontal and vertical directions; (2) a plurality of pixels including photoelectric converting elements arranged in the horizontal and vertical directions, respectively corresponding to the color filters; (3) a plurality of vertical read-out units provided for a plurality of pixels arranged in the vertical direction, the plurality of vertical read-out units are arranged to read out signals from the plurality of pixels arranged in the vertical direction; (4) a horizontal read-out unit arranged to read out sequentially the signals from the plurality of vertical read-out units in the horizontal direction; (5) an output unit arranged to output sequentially the signals from the horizontal read-out unit; and (6) a control unit arranged to divide the plurality of pixels on a unit basis of a predetermined number of lines, which includes a plurality of first lines

alternating with a plurality of second lines, and arranged to add the signals of pixels of adjacent first lines and second lines to generate a color difference signal from every unit, wherein the color difference signals generated from adjacent units are different, and the color difference signals generated from every other unit are equal.

One important feature of Claim 3 is the control unit arranged to divide the plurality of pixels on a unit basis of a predetermined number of lines, which includes a plurality of first lines alternating with a plurality of second lines, and arranged to add the signals of pixels of adjacent first lines and second lines to generate a color difference signal from every unit, wherein the color difference signals generated from adjacent units are different, and the color difference signals generated from every other unit are equal. This feature is described in the specification at least at page 20, line 14, to page 23, line 14, with reference to Figures 14-25.

This portion of the specification will be used as an example to illustrate the operation of the control unit recited in Claim 3. (It is to be understood that the scope of Claim 3 is not limited to the details of this embodiment, which is referred to only for purposes of illustration.) Figure 14 shows a pixel arrangement with vertical and horizontal read out units. The control unit divides these pixels on a unit basis of a predetermined number of lines. In this example, the unit comprises a group of four lines, i.e., the predetermined number of lines equals four. (See page 20, lines 18-22). Using Figure 14, a first unit is made of the first four rows of pixels above the horizontal read out units, and a second unit is made of the fifth through eighth rows of pixels above the horizontal read out units.

Claim 3 recites that the predetermined number of lines includes a plurality of first and second lines. Using Figure 14, the first lines of the first unit correspond to the first and third rows of pixels above the horizontal read out units, and the second lines of the first unit correspond to the second and fourth rows of pixels above the horizontal read out units. For the second unit, the first lines correspond to the fifth and seventh rows of pixels, and the second lines correspond to the sixth and eighth rows.

Claim 3 then recites that the control unit adds the signals of pixels of the first lines and second lines. This feature is described at page 21, lines 7-10, in reference to Figure 16, which states that "there are executed the addition of the signal charges of the (4n+1)th and (4n+2)th rows, and the addition of the signal charges of the (4n+3)th and the (4n+4)th rows."

The control unit uses this addition result to generate a color difference signal from every unit, wherein the color difference signals generated from adjacent units are different, and the color difference signals generated from every other unit are equal. In other words, the results of adding the first and second rows, and the third and fourth rows (comprising all four rows of the first unit described above), are used to generate a color difference signal S'(odd) with the color components (Cy + G) and (Ye + Mg). (See page 22, lines 1-5, and Figures 19-20). The results of adding the fifth and sixth rows, and the seventh and eighth rows (comprising all four rows of the second unit described above), are used to generate a color difference signal S'(even) with the color components (Cy + Mg) and (Ye + G). (See page 22, line 26 to page 23, line 6, and Figures 24-25).

In summary, the example described in reference to Figures 14-25, one whole unit of four lines are used to generate a single color difference signal, then an adjacent whole unit of four rows are used to generate a different color difference signal. As described at page 23, lines 8-14, this process is repeated, so that every other unit is used to generate the same color difference signal. But, adjacent units are used to generate different color difference signals. For example, every even unit is used to generate the same color difference signal, but consecutive units are used to generate different color difference signals.

The Examiner relies upon Section 2 and Figure 1 of Tanaka et al. to anticipate the control unit recited in Claim 3. Tanaka et al., as understood by Applicants, discusses the conventional color coding method where only two rows are used to generate a color difference signal. Referring to Figure 1, Field 1 uses the top two rows to generate the color difference signal (Mg + Ye) - (G + Cy), and the third and fourth rows from the top to generate the color difference signal (G + Ye) - (Mg + Cy). In contrast, the control unit of Claim 3 uses more than two rows to generate a color difference signal. In particular, the control unit adds the signals of pixels of the plurality of first lines and the signals of pixels of the plurality of second lines to generate a color difference signal from every unit. Since each unit has a plurality of first and a plurality of second lines, a unit defined by Claim 3 cannot have only two rows. Therefore, Tanaka et al. does not read upon Claim 3.

Stated another way, the control unit of Claim 3 uses all of the lines in a unit to generate a single color difference signal, and by definition, the units have more than two lines. Referring to the example of Figures 14-25 discussed above, all four lines of each unit are used to generate a single color difference signal. Tanaka et al. only uses two lines to generate a single color difference signal. Therefore, nothing has been found in Tanaka

et al. that would teach or suggest the control unit arranged to divide the plurality of pixels on a unit basis of a predetermined number of lines, which includes a plurality of first lines and a plurality of second lines, and arranged to add the signals of pixels of the plurality of first lines and the signals of pixels of the plurality of second lines to generate a color difference signal from every unit, wherein the color difference signals generated from adjacent units are different, and the color difference signals generated from every other unit are equal, as recited in Claim 3.

Accordingly, Applicants submit that Claim 3 is patentable over Tanaka et al.

A review of the other art of record has failed to reveal anything that, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as applied against the independent claim herein. Therefore, Claim 3 is respectfully submitted to be patentable over the art of record.

The other rejected claims in this application depend from the independent claim discussed above, and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

This Amendment After Final Action is believed clearly to place this application in condition for allowance and, therefore, its entry is believed proper under 37 C.F.R. § 1.116. Accordingly, entry of this Amendment After Final Action, as an earnest effort to advance prosecution and reduce the number of issues, is respectfully requested. Should the Examiner believe that issues remain outstanding, it is respectfully requested

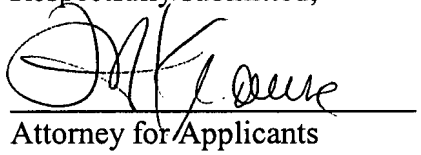
that the Examiner contact Applicants' undersigned attorney in an effort to resolve such issues and advance the case to issue.

As a final matter, Applicants wish to point out that the amendment and response transmittals dated January 3, 2002 and July 12, 2002, respectively, incorrectly listed the number of claims remaining after amendment and highest number of claims previously paid for. Both transmittals should have listed 32 total claims and 3 independent claims as both the claims remaining after amendment and highest number of claims previously paid for. It is believed that these errors have no effect on additional claim fees being due.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,



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